

PCTWORLD INTELLECTUAL PROPE
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INTERNATIONAL APPLICATION PUBLISHED UNDER

WO 9608170A1

(51) International Patent Classification 6: A23K 1/18, A01K 63/04, A01M 1/02, 1/04	A1	(11) International Publication Number: WO 96/08170 (43) International Publication Date: 21 March 1996 (21.03.96)
(21) International Application Number: PCT/AU95/00610 (22) International Filing Date: 14 September 1995 (14.09.95) (30) Priority Data: PM 8144 14 September 1994 (14.09.94) AU (71)(72) Applicant and Inventor: FRENCH, Andrew, Boyd [AU/AU]; 53 Sydney Road, Manly, NSW 2095 (AU). (74) Agent: COWLE, Anthony, John; Davies Collison Cave, Level 10, 10 Barrack Street, Sydney, NSW 2000 (AU).	(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published <i>With international search report.</i>	
(54) Title: AQUACULTURE FEEDING DEVICES AND METHODS (57) Abstract A dissolvable pellet (Fig. 1), biscuit or the like to supply a nutrient, a chemical substance, etc., to an aqueous environment. The pellet or biscuit comprises a primary ingredient, such as a nutrient or a chemical substance, and a gaseous substance, such as air or oxygen. The dissolvable pellet is supplied into an aqueous environment, wherein it dissolves to release the primary ingredient and air or oxygen. One embodiment may include fish food and oxygen, to feed fish and simultaneously replenish the oxygen levels in the water. A device to supply insects to aqueous animals is also disclosed, which incorporates an insect attraction means, such as a light source (Fig. 2) or a food source (Fig. 3). The light source may be a UV light to stun or kill the insects such that they drop to the water surface, or, a food source, such as meat or decaying matter, whereby insects, such as maggots are encouraged to breed. The device may be integrated with a naturally occurring environment, or, may be entirely fabricated and, optionally include the provision of means to control the environmental conditions.		

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AQUACULTURE FEEDING DEVICES AND METHODS

BACKGROUND OF THE INVENTION

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The present invention relates to improved feeding methods and devices for aquaculture.

10 The present invention provides to an improved method and device for supplying air, oxygen or other gaseous substance to an aqueous environment, and in particular to such a method for also supplying food, nutrient, medicament, or other treatment substance to an aqueous environment. The method and device are most preferably embodied as a biscuit, pellet or the like, to be supplied to an aqueous environment containing fish or the like, to provide both a nutrient (food) source for the animals and a gas to aerate or
15 oxygenate the aqueous environment.

The present invention also provides a device and method to supply fresh insects to fish and other aqueous animals, by positioning an insect attracting means substantially above or otherwise adjacent to the water surface, below which the fish or other aqueous
20 animals habitate.

It will be appreciated from reading the specification that there are a number of aspects to this invention, which may be utilised either separately, or in any combination, without limiting the scope of the invention.

25

DESCRIPTION OF THE PRIOR ART

At present, various problems are apparent in aquaculture farming systems, including the depletion of oxygen in the water supply, and the lack of naturally occurring
30 food substances.

For example, in trout farms, or other fish or marine animal farms, the oxygen in the water supply tends to become rather depleted. In order to overcome this problem, it

is known to attempt to aerate the water by means of simply providing an air or oxygen outlet into the water such that oxygen or other gaseous substances are permitted to bubble to the surface to hopefully improve the aeration of the water. Obviously, this can be an expensive procedure.

5

Another known problem with aquaculture farming systems is the difficulty associated with providing food to fish, such as trout, or other marine animals. At present, it is known to provide substances similar to chicken feed, to the marine animals, when food levels are lowest, to supplement the diet of the marine animals. The provision of such substances to marine animals is obviously quite expensive and, particularly when not suitable for the particular types of marine animals, may have undesirable effects on them. For example, it is commonly known that trout grown in aquaculture farms can have a very muddy taste, when fed on a processed pellets.

15

It is also presently known that other aqueous environments such as water treatment plants or sewage treatment plants, are required to be treated by means of supplying the air, oxygen or other gaseous substances in addition to medicaments, or other treatment compositions or chemicals.

20

Further still, it is known that insects, and the like, are a good and natural food source for marine animals. However, such insects are often in short supply, particularly in aqueous animal farms, necessitating the introduction of artificial food sources.

SUMMARY OF THE INVENTION

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The present invention seeks to overcome the disadvantages of the prior art by providing methods and devices which provide for improved feeding or treatment of aqueous environments.

30

The present invention also seeks to provide improved feeding methods and devices for aquaculture.

In one broad form, the present invention provides a dissolvable pellet, biscuit or

the like, adapted to supply a nutrient, a chemical substance or to otherwise treat an aqueous environment, said pellet, biscuit or the like comprising:

said nutrient, chemical substance, medicament or other primary ingredient(s); and, oxygen, air or other gaseous substance;

5 wherein, when said dissolvable pellet, biscuit or the like is supplied into said aqueous environment and dissolves, both said nutrient, chemical substance, or other primary ingredient, and said oxygen, air or other substance, are released into said aqueous environment.

10 Preferably, said primary ingredient comprises an aquaculture food source, and said gaseous substance comprises oxygen.

Alternatively, but also preferably said primary ingredient comprises a water treatment chemical, such as chlorine.

15

In a preferred form, said primary ingredient comprises gelatine or like binding ingredient.

20 Preferably, said aquaculture food source comprises insects, worms or other aquaculture food source.

In a preferred embodiment, said pellet, biscuit or the like is supplied with a predetermined amount of gaseous substance such that said pellet biscuit or the like sinks to a predetermined depth to then dissolve to release said nutrient, chemical substance, 25 medicament, or other primary ingredient and said oxygen, air or other gaseous substance into said aqueous environment.

Preferably, said primary ingredient(s) further comprises colouring, scenting and/or flavouring materials.

30

In a further broad form, the present invention provides a device to supply insects to aqueous animals, comprising an insect attraction means, such as a light source, a food source or the like, said insect attraction means being appropriately positioned substantially

above or adjacent to an aqueous animal environment or an insect collection area, whereby, insects are attracted to said insect attraction means and thereby become available for consumption by said aqueous animals, or for collection for subsequent provision to said aqueous animals.

5

In a preferred form, said device further comprises means, such that said insect attraction means is positioned substantially above said aqueous animal environment.

Also preferably, said device further comprises a net or other walled structure
10 adapted to prevent the egress of said insects therefrom.

Preferably, the environmental conditions, such as temperature, humidity, etc., are controlled within said net, walled structure or the like.

15 Also preferably, said device is embodied at least partially from a naturally occurring environment, such as a dam, pond or the like, or, entirely from a man-made structure.

Preferably, said device is embodied at least partially from a naturally occurring
20 environment, such as a dam or pond, and is provided with optionally removable wall - like members such that at least a partially controlled ecosystem is provided therein.

Also preferably, the device is embodied as a substantially entirely man-made structure, suitably adapted to be positioned anywhere within the world, and having
25 appropriately controlled environmental conditions therein appropriate for breeding aquaculture and/or insects.

Preferably, the device is embodied having appropriate refrigeration, humidity and other environment controlling device to separately control the environments wherein the
30 aquaculture and/or insects are housed, and, wherein the products of one system may be utilised in the other, for example, the spent water from the aquaculture environment may be utilised for the insect breeding environment.

In a preferred form, said insect attraction means is embodied as a U-V or similar light source adapted to attract and then stun or kill insects such as moths, mosquitos, etc., particularly nocturnally such that they fall to the surface of said aqueous environment.

5 Preferably said light source is powered by a battery means, which is charged during daylight hours by a solar powered collection means.

Also preferably, said light source is controlled by a timing mechanism and/or a light sensitive meter.

10

In an alternatively preferred embodiment, said insect attraction means is embodied as a food source such as meat, decaying matter, etc., adapted to attract insects, particularly flies and maggots, such that they live/breed on or proximal to the surface of said aqueous environment, and become available for consumption by said aqueous
15 animals.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the following
20 detailed description of preferred but non-limiting embodiments thereof, described in connection with the accompanying drawings, wherein:

Fig. 1 illustrates an aerated biscuit, pellet or like substance in accordance with an embodiment of the present invention;

Fig. 2 illustrates an insect collection device in accordance with another aspect of
25 the present invention;

Fig. 3 illustrates an alternative embodiment of an insect collection device of the present invention;

Fig. 4 illustrates a preferred embodiment of an environmentally controlled aquaculture environment, incorporating the features of the invention;

30 Fig. 5 illustrates an alternative embodiment of an aquaculture environment; and

Fig. 6 details the components for environmental control of the device of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

As shown in Fig. 1, an aerated biscuit, pellet or the like substance, generally designated by the numeral 1, comprises a base material 2, formed into any shape or size and of any hardness, aerated with air, oxygen or other gaseous substance, such that a plurality of bubbles or the like 3, are created or "foamed" therein. The biscuit, pellet or like substance may be of any colour, thickness, and may be adapted to either sink or float, and be scented or flavoured, if required. An advantage of the biscuit sinking is that good aeration takes place throughout the depth of the aqueous environment.

10

In addition to being foamed to contain gas or bubbles 3 therein, it could have any additive, minerals, medicine, or the like formed therein. Most preferably, the biscuit, pellet or like substance is formed of a gelatine type material which is dissolvable in water, is edible, and is easily foamed with air, oxygen or other gaseous material. Typically, gelatine contains 1500kJ energy, 88g protein, no fat, 250mg sodium and 50mg potassium per 100g of gelatine. As such, gelatine is a nutritious and inexpensive product to use. It is also substantially non-perishable when stored properly and substantially dissolvable in water.

20 In use, once the biscuit is formed, it is adapted to be thrown into a marine environment to boost oxygen or air levels in the water, or boost the levels of other gaseous substances in the water, and also is able to be used as a feeding supplement, or as a treatment substance to supply a particular substance to the water or other fluid environment.

25

For example, when used as food material, the biscuit can be made from any edible material, and may also contain a preserved feed inside. As the biscuit dissolves in the water, and is eaten, oxygen or other gases, and feed are released into the water. It will be appreciated that such a biscuit may be produced and sealed in a package. It is able to be easily stored and used whenever it is required by simply placing it in water.

30

It will be appreciated by persons skilled in the art that quantity of naturally occurring food supply is seasonally dependent. As such, it is anticipated that insects,

worms, or other marine food sources, which are more plentiful in summer, could be caught, captured in such a biscuit or pellet material, and then utilised during winter or leaner months. These insects, worms or the like, could either be preserved in a live or dead state. That is, whilst they are alive, the insects, worms or the like, may be supplied
5 into the aerated biscuit, pellets or the like, to continues living therein until they are to be used as feed, or, they may be entombed therein in a live state but may subsequently die after a predetermined time.

Whilst any type of food supplement could be utilised, it would be appreciated by
10 persons skilled in the art that the use of insects, worms, or other naturally occurring food substances are more preferably used with the biscuit, pellet or like substance of the present invention. This would avoid, for example, chicken food pellets being utilised which tend to give trout and other marine animals a muddy taste, or at least a taste different to that when fed with naturally occurring food substances.

15

It will be appreciated by persons skilled in the art that a variation of the invention will be applicable to water treatment plants or sewage treatment plants. For example, a pellet, foamed with air, oxygen or other gas may be utilised to aerate water or sewage. Additionally, chemicals or the like may be supplied, e.g. chlorine, fluoride, etc., to treat
20 the water or sewage. The invention is also useful to remove large concentrations of minerals or other materials. For example, iron is soluble in water where there is little or no oxygen. Aeration oxidises the iron, forming solid particles that can then settle out of solution - thus improving the water quality.

25 The inventor has also developed a useful insect collecting devices which may be utilised either separately or in combination with the biscuit, pellet or like substance of the present invention. Such devices are shown in Fig. 2 and Fig. 3.

The device of Fig. 2, generally designated by the numeral 10, comprises a pair of
30 insect attracting light sources 11 having a plurality of electrified wires or the like 12 intended to stun insects. The light devices are supplied on a beam 13 electrically connected to solar panels 14, appropriate circuitry 15, such as timers, inverters, etc., and batteries 16. The entire support device is supplied on a pontoon 17 over a marine

environment 18. In use, the device may be floated in a pontoon, or may be land or otherwise mounted, and the solar panels 14 are adapted to charge the batteries 16 during daylight hours. At night, appropriate circuitry turns on the lights 11 to attract insects. The low voltage wires 12 stun the insects and they fall into the water such that the fish or other marine animals may feed on natural food at no recurring cost to the aquaculture farmer.

It will be appreciated that it is more preferable that a suitable low voltage is used to 'stun' rather than 'kill' insects, such that the insects do not become burnt or the like, losing nutritional value when intended to be used as marine food. Suitable voltages will become understood to persons skilled in the art - noting that different voltages may be suitable to selectively stun different species of insects.

It will be appreciated that this device may be simply provided over the marine environment such that the insects are stunned and automatically fall into the water, or, such an insect collecting device may be supplied in the remote location with collecting trays thereunder in place of the pontoon, such that the insects may be collected and then supplied into the biscuit, pellets, or like food substance hereinbefore described.

Such an insect collecting device may be utilised in a specialised insect breeding enclosure. For example, a pool of dirty, mosquito-breeding water may be provided therein to breed mosquitos ready for 'zapping'.

The device of Fig. 3, generally designated by the numeral 20 comprises a food source 21, such as meat or decaying matter, which is hung from the apex of a floating structure 22. The structure 22 may be covered with a net 23, shade cloth or like material, to prevent flies, maggots and other insects escaping therefrom. Maggots and flies breed inside and provide food for the fish 24 below.

In Fig. 4 is shown an outdoor enclosure built about or above a pond or dam for breeding trout or other aquaculture. The environment 30 comprises a screen or enclosure 37 which may for example be constructed of mesh material, glass or plastics material, or any other suitable product. The selection of the material will depend upon the external

environmental conditions and the insulative properties, etc., required for optimal environmental conditions within the housing 30. The breeding water 38 is provided in a lower portion of the environment 30, wherein the trout or other fish or aquaculture breed. Raw meat or other decaying product 35 is appropriately, positioned within the enclosure for the breeding of maggots or flies, etc.

The stunning devices 36 are then provided and operated as required to stun or kill the insects. Other insects such as mosquitos 31, dragonflies 32, frogs 33, and ants 34 may also be supplied within the environment as required.

In Fig. 5 is shown a plan view of a "factory" environment 42 comprises the plurality of water raceways 41 provided with the fish stock. Once again, mosquitos 33, flies 34, dragonflies 35, and worms 36 and/or any other types of insects as required, may be provided.

Fig. 6 illustrates the components for environmental control of the factory or other enclosure. Cold water 51 can be provided with the fish stock, which is interconnected with the insect breeding environment 53 via refrigeration machinery 52 and the heat transfer pipes 54, for the transfer of spent heat from the water to be released into the insect breeding environment.

It will be appreciated by persons skilled in the art that numerous variations and modifications can be made to this invention. Numerous other optional features may also be incorporated with the invention as herein described.

For example, when the device is embodied such as in the device of Fig. 2, i.e. outdoors and without a net or other covering, in order to assist the prevention of birds praying on the fish, suitable electronic and/or scarecrow devices may be provided. In order to assist in the aeration of the water, conventional pedal type devices or other types of aeration system may also be provided. To assist the provision of insects into or onto the surface of the water, suitable devices, such as dunking mechanisms may be provided.

In certain situations, when the aquaculture system is to be provided in a suitable

environment, the natural insect population may be utilised and attracted towards the aquaculture breeding environment. For instance, entry points to permit the entry but prevent the egress of flies and other insects into the system may be provided. Various other types of fans, etc. can be utilised to assist the ingress of flies and other insects into
5 the system. Fans, etc., could also be utilised to assist the movement of flies to the water surface position such that the fish can then have access to same. This may for example be embodied by creating a airflow effect, whereby the exit portions are around the lower perimeter of the housing such that as the insects attempt to exit the system, they are drawn into the water. Obviously, depending upon the environmental conditions desired
10 within the environment, the factory walls or nets may be chosen to have suitable insulative and solar entry properties, such that the growth rate of the aquaculture, together with the breeding rate of the flies, etc., is optimised.

It will be appreciated that the various embodiments of the invention have
15 significant advantages in the aquaculture industry, including that the devices are inexpensive to manufacture and virtually free to run. Providing free natural food will increase profit margins, and give the stock it natural flavour.

It will be appreciated that other variations and modifications will become apparent
20 to persons skilled in the art from a reading of the specification. All such variations and modifications should be considered to fall within the spirit and the scope of the invention as hereinbefore described.

THE CLAIMS

1. A dissolvable pellet, biscuit or the like, adapted to supply a nutrient, a chemical substance or to otherwise treat an aqueous environment, said pellet, biscuit or the like comprising:
 - 5 said nutrient, chemical substance, medicament or other primary ingredient(s); and, oxygen, air or other gaseous substance;
 - wherein, when said dissolvable pellet, biscuit or the like is supplied into said aqueous environment and dissolves, both said nutrient, chemical substance, or other primary ingredient, and said oxygen, air or other substance, are released into said aqueous
 - 10 environment.
2. A dissolvable pellet, biscuit or the like as claimed in claim 1, wherein said primary ingredient comprises an aquaculture food source, and said gaseous substance comprises oxygen.
- 15 3. A dissolvable pellet, biscuit or the like as claimed in claim 1, wherein said primary ingredient comprises a water treatment chemical, such as chlorine.
4. A dissolvable pellet, biscuit or the like as claimed in any one of claims 1 to 3,
- 20 wherein said primary ingredient comprises gelatine or like binding ingredient.
5. A dissolvable pellet, biscuit or the like as claimed in claim 2, wherein said aquaculture food source comprises insects, worms or other aquaculture food source.
- 25 6. A dissolvable pellet, biscuit or the like as claimed in any one of claims 1 to 5, wherein said pellet, biscuit or the like is supplied with a predetermined amount of gaseous substance such that said pellet biscuit or the like sinks to a predetermined depth to then dissolve to release said nutrient, chemical substance, medicament, or other primary ingredient and said oxygen, air or other gaseous substance into said aqueous environment.
- 30 7. A dissolvable pellet, biscuit or the like as claimed in any one of claims 1 to 6, wherein said primary ingredient(s) further comprises colouring, scenting and/or flavouring materials.

8. A device to supply insects to aqueous animals, comprising an insect attraction means, such as a light source, a food source or the like, said insect attraction means being appropriately positioned substantially above or adjacent to an aqueous animal environment
5 or an insect collection area, whereby, insects are attracted to said insect attraction means and thereby become available for consumption by said aqueous animals, or for collection for subsequent provision to said aqueous animals.

9. A device as claimed in claim 8 wherein said device further comprises means, such
10 that said insect attraction means is positioned substantially above said aqueous animal environment.

10. A device as claimed in claims 8 and 9, wherein said device further comprises a
15 net, a walled structure or the like adapted to prevent the egress of said insects therefrom.

11. A device as claimed in any one of claims 8 to 10, wherein the environmental
conditions, such as temperature, humidity, etc., are controlled within said net, walled
structure or the like.

20 12. A device as claimed in any one of claims 8 to 11, wherein said device is embodied at least partially from a naturally occurring environment, such as a dam, pond or the like, or, entirely from a man-made structure.

13. A device as claimed in any one of claims 8 to 12, wherein said device is
25 embodied at least partially from a naturally occurring environment, such as a dam or pond, and is provided with optionally removable wall - like members such that at least a partially controlled ecosystem is provided therein.

14. A device as claimed in any one of claims 8 to 12, wherein the device is embodied
30 as a substantially entirely man-made structure, suitably adapted to be positioned anywhere within the world, and having appropriately controlled environmental conditions therein appropriate for breeding aquaculture and/or insects.

15. A device as claimed in any one of claims 8 to 14, wherein the device is embodied having appropriate refrigeration, humidity and other environment controlling device to separately control the environments wherein the aquaculture and/or insects are housed, and, wherein the products of one system may be utilised in the other, for example, the
5 spent water from the aquaculture environment may be utilised for the insect breeding environment.

16. A device as claimed in any one of claims 8 to 15, wherein said insect attraction means is embodied as a U-V or similar light source adapted to attract and then stun or
10 kill insects such as moths, mosquitos, etc., particularly nocturnally such that they fall to the surface of said aqueous environment.

17. A device as claimed in claim 16, wherein said light source is powered by a battery means, which is charged during daylight hours by a solar powered collection means.
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18. A device as claimed in claim 17, wherein operation of said light source is controlled by a timing mechanism and/or a light sensitive meter.

19. A device as claimed in any one of claims 8 to 18, wherein said insect attraction
20 means is embodied as a food source such as meat, decaying matter, etc., adapted to attract insects, particularly flies and maggots, such that they live/breed on or proximal to the surface of said aqueous environment, and become available for consumption by said aqueous animals.

25 20. A dissolvable pellet, biscuit or the like, including a method of making/using same, substantially as herein described with reference to the accompanying drawings.

21. A device to supply insects to aqueous animals, comprising an insect attraction means, such as a light source, a food source or the like, substantially as herein described.
30

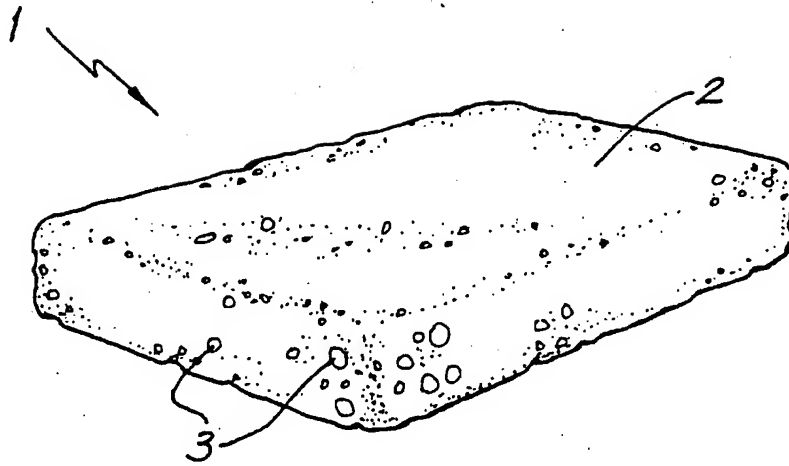


FIG. 1

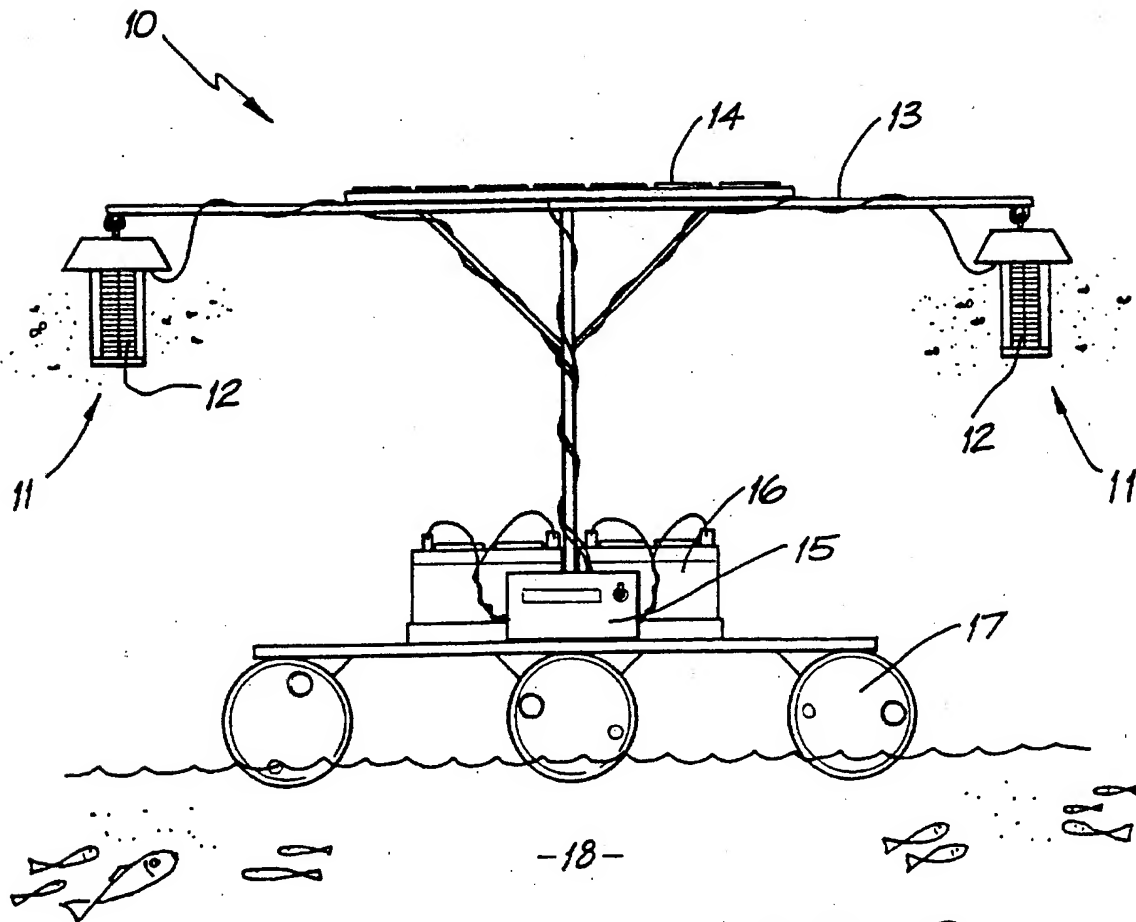


FIG. 2

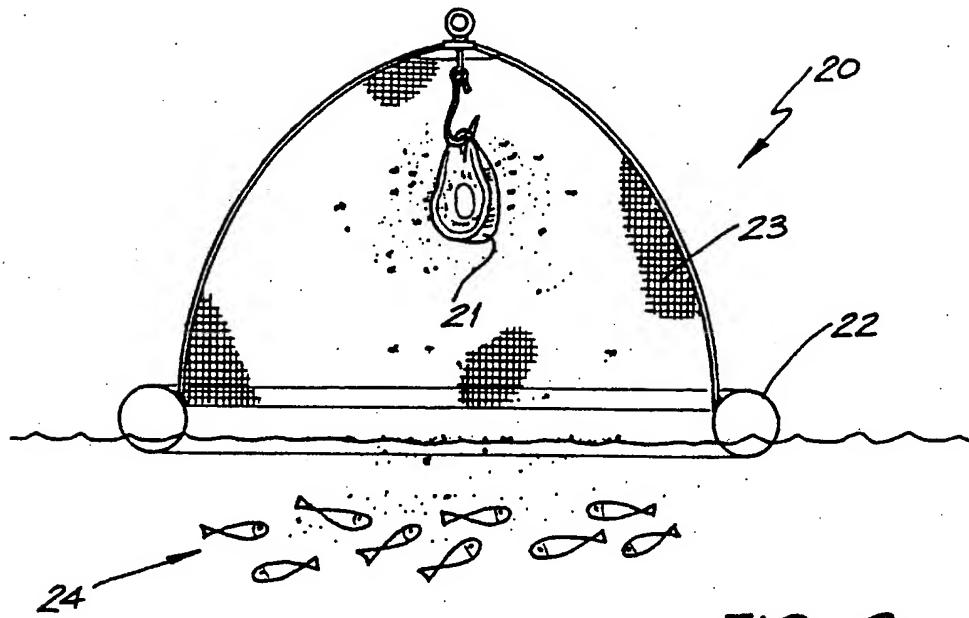


FIG. 3

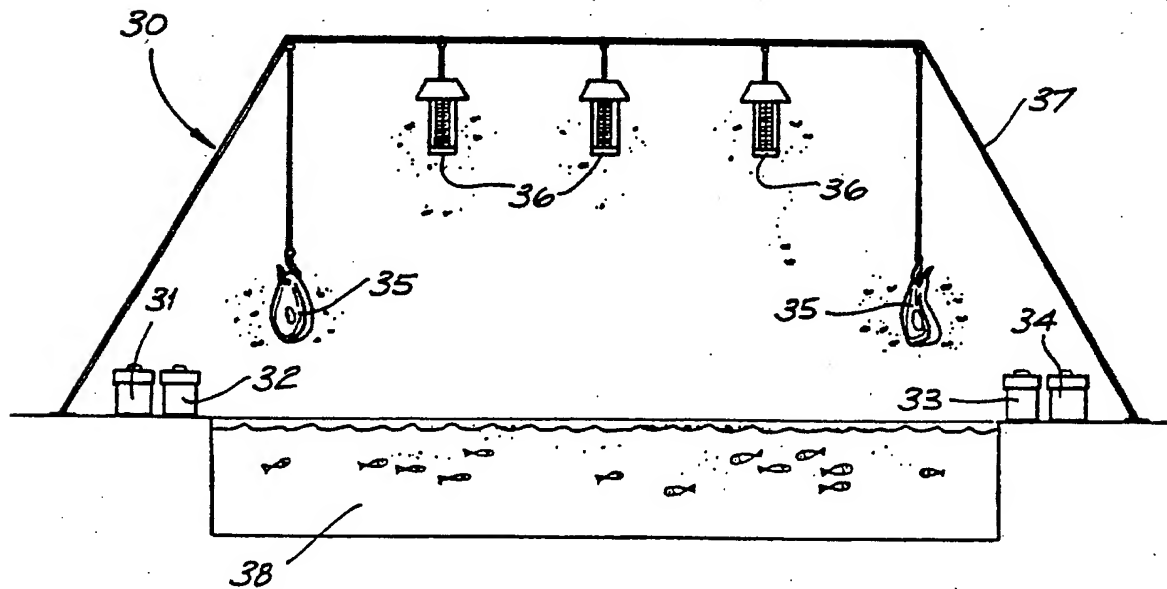


FIG. 4

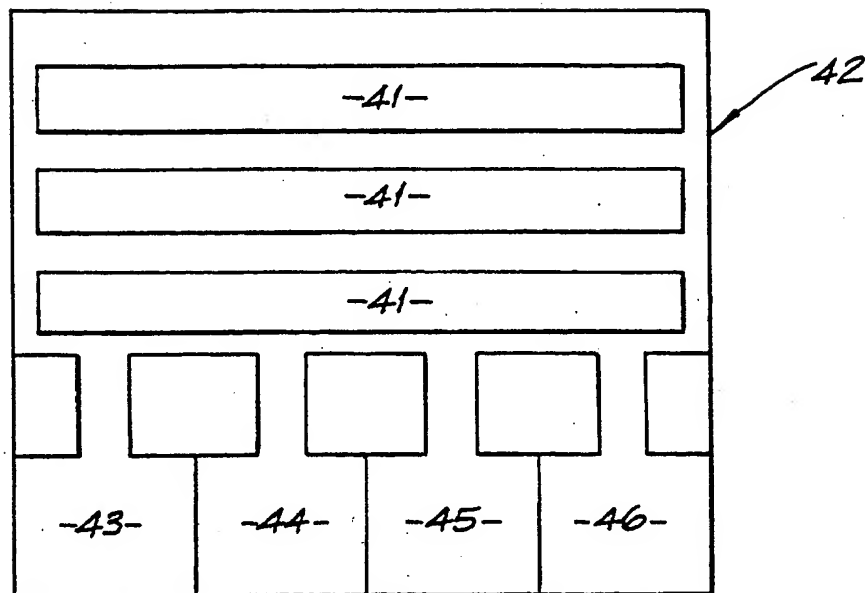


FIG. 5

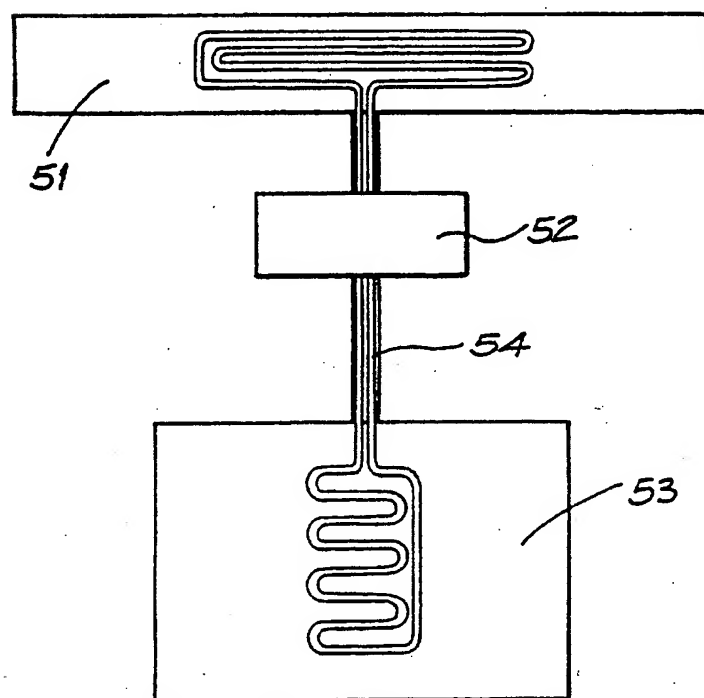


FIG. 6

INTERNATIONAL SEARCH REPORT

International Application N.
PCT/AU 95/00610**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl⁶: A23K 1/18; A01K 63/04; A01M 1/02, 1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A23K 1/18; A01K 63/04; A01M 1/02, 1/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DERWENT: fish and pisci culture: aquaculture, gas and nutrient release

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Derwent Abstract Accession No. 88-231465/33, Class P14, JP 3164833 A (TAKASUGI) 8 July 1988	
A	Patent Abstracts of Japan, C-643, page 42, JP 1-174315 A (KARITA) 10 July 1989	

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search
7 December 1995Date of mailing of the international search report
20 December 1995Name and mailing address of the ISA/AU
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C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Patent Abstracts of Japan, C-368, page 138, JP 61-77605 A (DAIICHI SANGYO K.K.) 21 april 1986	
X	Derwent Abstract Accession No. 91-248426/34, Class P14, JP 3160940 A (DENKA INT BV) 10 July 1991 abstract	8, 10, 16 17, 18
Y	abstract	
X	US 5301456 A (JOBIN et al.) 12 April 1994 abstract	8, 16-18
X	US 4979329 A (OLIVE et al.) 25 December 1990 column 2, lines 15-63	8, 10, 16
X	US 3059373 A (GARDNER) 23 October 1962 whole document	8
A	GB 2253331 A (TANAKA) 9 September 1992	

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 95/00610

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

(Reasoned on extra sheet)

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims: it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

Box II (continued)

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are two inventions:

- 1 Claims 1-7 directed to a dissolvable pellet, biscuit or the like, adapted to supply a nutrient, a chemical substance or a gaseous substance for an aqueous environment. It is considered that the dissolvable pellet which releases nutrient, chemical substance or gaseous substance into the aqueous environment comprises a first "special technical feature".
- 2 Claims 8-19 directed to an insect catching device to supply insects to aqueous animals. It includes an insect attraction means positioned above or adjacent to an aqueous animal environment. It is considered that this feature constitutes a second separate "special technical feature".

Since the above-mentioned groups of claims do not share either of the technical features identified, a "technical relationship" between the inventions, as defined in PCT Rule 13.2, does not exist. Accordingly, the international application does not relate to one invention or to a single inventive concept.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No.
PCT/AU 95/00610

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5301456	CA	2050234				
US	4979329	US	4918856				
GB	2253331	AU	88132/91	CH	683224	DE	4140532
		FR	2673511	HK	587/95	IL	100454
		IT	1252232	JP	5219900	US	5229146

END OF ANNEX

